



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/077,565

02/15/2002

Younglok Kim

I-2-176.5US

3991

24374 7590 11/24/2009

VOLPE AND KOENIG, P.C.
DEPT. ICC
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER

HOANG, THAI D

ART UNIT

PAPER NUMBER

2463

MAIL DATE

DELIVERY MODE

11/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YOUNGLOK KIM and ARIELA ZEIRA

Appeal 2009-006660
Application 10/077,565
Technology Center 2400

Decided: November 24, 2009

Before JOSEPH F. RUGGIERO, KARL D. EASTHOM, and ELENI
MANTIS MERCADER, *Administrative Patent Judges*.

EASTHOM, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal¹ under 35 U.S.C. § 134(a) from the Final Rejection of claims 1-4, 9, and 10.² No other claims are pending. (Br. 2.) We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellants disclose a base station transmitter with at least first and second antennas. The first antenna transmits data spread by a channelization code C_1 through first antenna 15. Similarly, the second antenna transmits data spread by a channelization code C_2 through second antenna 16. (*See* Fig. 2.) Exemplary claims 1 and 9 follow:

1. A user equipment (UE) including a transmitter for transmitting a data field of symbols, the transmitter comprising:
 - a first and second antenna for transmitting said data field of symbols, wherein said data field includes a first data field;
 - an encoder for encoding said data field producing a second data field having complex conjugates of the symbols of said data field;
 - a first channelization device for receiving the data field including the first data field and spreading said first data field, wherein said first channelization device spreads said first data field using a first channelization code that is uniquely associated with the first antenna; and
 - a second channelization device for receiving the second data field from the encoder and spreading said second data field using a second

¹ Oral argument was heard on November 3, 2009. During the same hearing session on November 3, 2009, oral hearings were conducted on related Appeal Nos. 2009-006365 (S.N. 10/071,903), 2009-006389 (S.N. 10/071,917), 2009-006410 (S.N. 10/077,076), 2009-006704 (S.N. 10/079,107), 2009-006837 (S.N. 09/999,287), and 2009-007629 (S.N. 10/107,465).

² This opinion refers to Appellants' Brief (filed Feb. 14, 2008) [hereinafter "Br."], and the Examiner's Answer (mailed May 28, 2008) [hereinafter "Ans."] and Final Office Action (mailed Aug. 15, 2007) [hereinafter "Fin. Rej."].

channelization code, the second channelization code being uniquely associated with the second antenna.

9. A user equipment (UE) including a transmitter for transmitting a data field of symbols, the transmitter comprising:
- a first and second antenna for transmitting said data field of symbols; and
 - a first channelization device for spreading said data field, wherein said first channelization device spreads said data field using a first channelization code that is uniquely associated with the first antenna, producing a first spread data field; and
 - a second channelization device for spreading said data field using a second channelization code that is uniquely associated with the second antenna, producing a second spread data field.

The Examiner relies on the following prior art references:

Dabak '473	US 6,594,473 B1	July 15, 2003
Akiba	US 6,721,300 B1	Apr. 13, 2004
Dabak '260	US 6,775,260 B1	Aug. 10, 2004
Ylitalo	US 6,788,661 B1	Sept. 7, 2004

The Examiner rejected:

Claims 1-4, 9, and 10 under the judicially created doctrine of obviousness-type double patenting based on Application No. 10/077,076.

Claims 1-4, 9, and 10 under the judicially created doctrine of obviousness-type double patenting based on Application No. 10/079,107.

Claims 1-4 as indefinite under 35 U.S.C. § 112, second paragraph.

Claim 9 as anticipated under 35 U.S.C. § 102(e) based on Dabak '473.

Claim 10 as obvious under 35 U.S.C. § 103 based on Dabak '473 and Akiba.

Claim 1 as obvious under 35 U.S.C. § 103(a) based on Dabak '260 and Ylitalo.

Claims 2-4 as obvious under 35 U.S.C. § 103(a) based on Dabak ‘260, Ylitalo, and Akiba.

ISSUES

Double Patenting

Appellants do not contest the Examiner’s rejections under the judicially created doctrine of obviousness-type double patenting. Rather, Appellants (Br. 5) state that they are “willing to submit a terminal disclaimer to overcome the rejections . . . if the Application is otherwise allowable.”

Indefiniteness – Claim 1

Appellants (Br. 6) contest the Examiner’s finding that claim 1 is indefinite, raising the following issue: Did Appellants show that the Examiner erred in finding claim 1 indefinite?

Anticipation – Claim 9

Appellants (Br. 8) contest the Examiner’s finding that Dabak ‘473 anticipates the claim 9 limitations related to unique associations of channelization codes with antennas, raising the following issue: Did Appellants show that the Examiner erred in finding that Dabak teaches spreading a data field using “a first channelization code that is uniquely associated with the first antenna” and “a second channelization code that is uniquely associated with the second antenna” as set forth in claim 9?

Obviousness – Claim 1

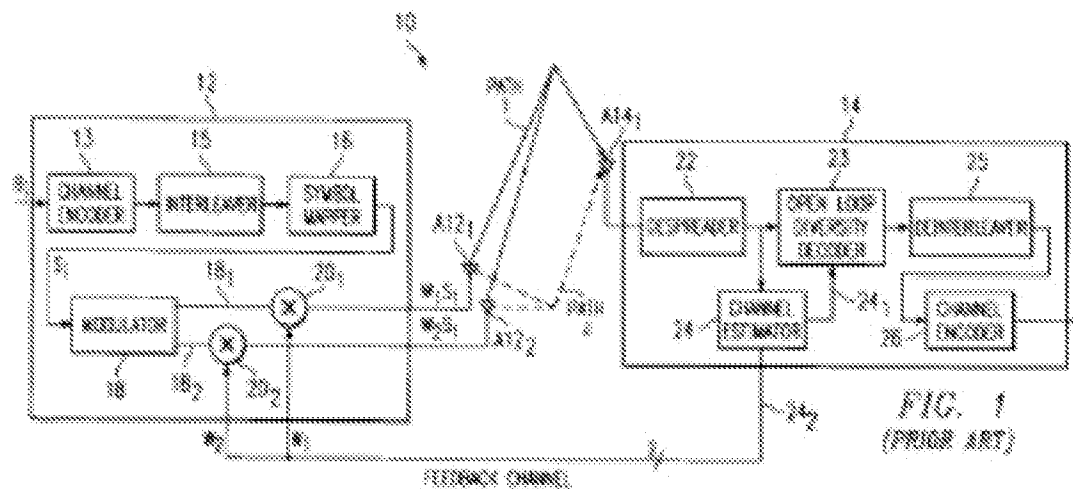
Appellants (Br. 6-7) similarly contest the Examiner’s finding that Ylitalo teaches unique associations of channelization codes with antennas, raising the following issue: Did Appellants show that the Examiner erred in finding that Ylitalo teaches spreading first data using “a first channelization code that is uniquely associated with the first antenna” and spreading second

data using “a second channelization code [that is] uniquely associated with the second antenna” as set forth in claim 1?

FINDINGS OF FACT (FF)

Dabak ‘473

1. Dabak ‘473’s Figure 1 is depicted below:



Dabak ‘473’s Figure 1 represents a prior art CDMA system showing two antennas transmitting spread signals W_1S_1 and W_2S_1 . (Col. 3, l. 24 to col. 4, l. 11.)

2. Dabak '473's Figure 4 is depicted below:

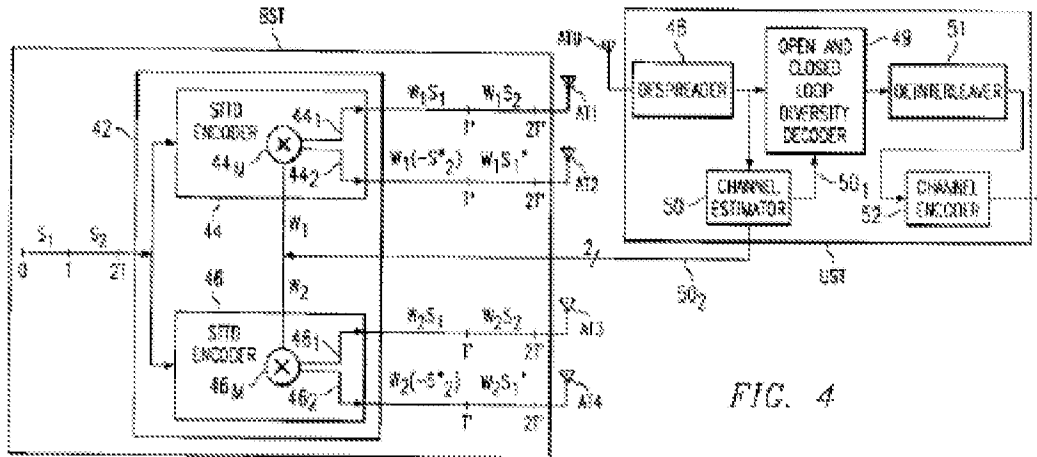


FIG. 4

Dabak '473's Figure 4 depicts four antennas and represents Dabak '473's improvement over the dual-antenna prior art CDMA spreading scheme described above (FF 1). (Col. 7, l. 65 to col. 8, l. 8; *see also* col. 6, ll. 54-57.)

Ylitalo

3. Ylitalo explains (col. 4, ll. 25-30) that “[o]rthogonal beams are separately identifiable to the receiver by . . . using a different spread spectrum code for each beam in a CDMA system” Referring to Figure 4, Ylitalo (col. 4, ll. 56-59) states: “In a CDMA system, multipliers 12, 14 impart different spread spectrum codes to different beams so that a receiver at remote station 2 can discern the beams separately.” In the next passage (col. 4, l. 60-62), Ylitalo refers to the codes as “separate distinguishable spreading codes in a CDMA system . . . applied to multipliers 12, 14 . . . to create the orthogonal beams”

Figure 4 depicts multiplier 12 (with code OC (i.e., orthogonal code)) connected to antenna 16 in channel CH₁ transmitting data (S₁, -S₂*) and multiplier 14 (with a separate code OC – *see* discussion in preceding paragraph) connected to antenna 18 in a separate channel CH₂ transmitting data (S₂, S₁*).

Akiba

4. Referring to Figure 1, Akiba states (col. 4, ll. 11-15): “Code multipliers 114 and 116 multiply transmission data by various spreading codes such as a channelizing code and scrambling code. Signals are transmitted from two antennas 118 and 120 with [sic] same power, for example.”

PRINCIPLES OF LAW

“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability.” *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). Appellants carry the burden on appeal to show reversible error by the Examiner in maintaining the rejection. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) (“On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness.” (Citation omitted)).

Under § 112, second paragraph, claims must be “sufficiently definite such that those skilled in the art would understand what is being claimed when the claim is read in light of the Specification.” *Ex parte Miyazaki*, 89 USPQ2d 1207, 1211 (BPAI 2008) (precedential), *available at*

<http://www.uspto.gov/web/offices/dcom/bpai/prec/fd073300.pdf>. “It is evident to us from the above summary of the description, definitions and examples appearing in appellant’s specification, that the claims on appeal are inherently inconsistent. . . . The result is an inexplicable inconsistency within each claim that the rejection under 35 U.S.C. 112 on grounds of indefiniteness be sustained.” *In re Cohn*, 438 F.2d 989, 993 (CCPA 1971).

Under § 103, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d at 988. Obviousness is determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d at 1445.

“[A]rguments not presented in the brief or reply brief and made for the first time at the oral hearing are not normally entitled to consideration.” MPEP § 1205.02 (8th ed., rev. 7, July 2008) (citing *In re Chiddix*, 209 USPQ 78 (Comm’r Pat. 1980)).

ANALYSIS

Indefiniteness

Rejection of Claims 1-4

The Examiner asserted (Fin. Rej. 3-4) that claim 1 is unclear because the phrase “a first and second antenna for transmitting said data field of symbols wherein said data field includes a first data field” requires transmission by both antennas. The Examiner maintains (*id.*) that “said data field” refers to all the transmitted data, i.e., the data D_1 , D_2 , and the complex conjugates of that data, D_1^* and D_2^{*3} - respectively disclosed as transmitted

³ Appellants actually disclose transmission of the negative of the complex conjugated data D_2^* (i.e., $-D_2^*$), but reference here is simply to D_2^* (Fig. 2).

by the first and second antennas 15 and 16 in Figure 2 of Appellants' disclosure.

As such, according to the Examiner, the claim 1 phrase, "an encoder for encoding said data field producing a second data field having complex conjugates" is unclear, because if "said data field" refers to all the data, then the encoder limitation requires the encoder to produce complex conjugates of all the data, D_1 , D_2 , D_1^* , and D_2^* . The Examiner (*id.*) correctly implies that such a construction would contradict the disclosure because the encoder 11 (Fig. 2) only produces the complex conjugates D_1^* and D_2^* .

Appellants (Br. 6) responded by stating that the "encoder is shown in Figure 2 as receiving the data field that is recited in the preamble of the claim." As discussed *supra*, Appellants' encoder in Figure 2 only receives data D_1 , D_2 (to create the complex conjugates D_2^* , D_1^*). Thus, if the preamble phrase "a data field," and subsequent references to it in claim 1, i.e., "said data field," refer only to data D_1 , D_2 , then the claim comports with the disclosure.

Appellants also respond (Br. 6) that "[e]ither antenna shown in Figure 2 may be considered to be the first or second antenna." In other words, either antenna of the claim can transmit "said data field" D_1 and D_2 – implying that the other antenna can transmit D_1^* and D_2^* – even if the open ended pre-amble only *requires* transmission of "a data field" comprising D_1 and D_2 .

(The complex conjugate involves a phase transformation of the particular data element D_1 or D_2 . Appellant's encoder also re-arranges the data order from (D_1, D_2) to $(-D_2^*, D_1^*)$ – see Fig. 2).

The Examiner does not respond to this line of reasoning in the Answer (*see* Ans. 10-11), but rather, relies on the reasoning proposed in the Final Rejection and discussed *supra*. Appellants have described how the claim comports with the disclosure in response to the Examiner's proposed construction showing how the claim does not. In other words, in light of the disclosure, the record shows that the claim is amenable to Appellants' construction, but not the Examiner's. Therefore, claim 1 is "sufficiently definite such that those skilled in the art would understand what is being claimed when the claim is read in light of the Specification." *Miyazaki*, 89 USPQ2d at 1211. Based on the discussion above, Appellants have demonstrated Examiner error in the indefiniteness rejection of claims 1-4.

Anticipation

Rejection of Claim 9 Based on Dabak '473

The Examiner (Ans. 8-9) found that Dabak '473's Figure 4 discloses a first channelization code W_1 uniquely associated with first antenna AT1 and a second channelization code W_2 uniquely associated with second antenna AT3.⁴

⁴ The Examiner listed the rejection under a major 35 U.S.C. 103 heading and also under a minor 35 U.S.C. 102(e) heading. (Ans. 6, 8.) It appears that the Examiner intended to make a 103 rejection, but the reference also anticipates the claim for the reasons that follow in the opinion. The Examiner did state at one point that the association was unique, raising an anticipation analysis, and also reasoned that it was not unique, raising an alternative obviousness analysis. (*See* Ans. 9.) As to the latter analysis, the Examiner found that it would have been obvious to reduce four antennas to two in order to simplify the system and reduce time delay processing. (*Id.*; Ans. 12) Appellants do not provide a convincing response to the latter rationale, and therefore, fail to demonstrate error.

Appellants' response follows:

Dabak . . . discloses spreading data on more than one antenna using the *same* walsh [sic] code. Referring to Figure 4 of Dabak, Walsh code one (W1) is used to spread the data transmitted on both antenna one *and* antenna two. Walsh code two (W2) is used to spread the data transmitted on both antenna three *and* antenna four.

(Br. 8).

As the passage shows, Appellants do not dispute the Examiner's characterization of W_1 and W_2 as each representing distinct channelization codes. Rather, Appellants dispute the Examiner's finding that W_1 is uniquely associated with an antenna and W_2 is uniquely associated with another antenna.

While Appellants are correct that Dabak '473's Figure 4 discloses four antennas (FF 1) and a group of two antennas each share the same code, Figure 4 (FF 1) represents Dabak '473's improvement over prior art Figure 1 (FF 2). Figure 1 discloses only two antennas with W_1 uniquely associated with first antenna AT12₁ and W_2 uniquely associated with second antenna AT12₂ (FF 2). Therefore, based on the arguments presented, Figure 1 satisfies the disputed limitations of claim 9.

Further, Figure 4 also satisfies claim 9. That is, W_1 is uniquely associated with antenna AT1 and antenna AT2, while W_2 is uniquely associated with antenna AT3 and antenna AT4. Each *association* is unique because it involves a unique combination of code, transmission line, and antenna. It follows that W_1 is uniquely associated with AT1 and W_2 is uniquely associated with AT3.

According to the discussion above, Appellants have failed to demonstrate Examiner error in the rejection of claim 9.

Obviousness

Rejection of Claim 10 based on Dabak '473 and Akiba

The Examiner (Ans. 8 (citing Akiba col. 4, ll. 11-14 and pointing to scrambling devices 114 and 116 in Figure 1)) found that Akiba suggests combining “a first and second scrambling device” as set forth in claim 10 with Dabak '473's transmitter “to protect data transmission in the network,” thereby satisfying the added limitations of dependent claim 10. The record (FF 4) supports this finding. Appellants' response (Br. 9) relies on Dabak '473's alleged deficiencies with respect to independent claim 9. Appellants (*id.*) also repeat the limitations of claim 10 and deny that the combined references satisfy the claim.

Appellants' reliance on claim 9, for the reasons explained above, and mere denial with respect to claim 10, fails to demonstrate error in the Examiner's *prima facie* rejection of claim 10.

Rejection of Claim 1 based on Ylitalo and Dabak '260

Appellants (Br. 6-7) assert that Ylitalo does not disclose a first channelization code uniquely associated with a first antenna and a second channelization code uniquely associated with a second antenna. Appellants also point out (*id.*) that Ylitalo also discloses an encoder. The Examiner found (Ans. 6-7, 11) that the two orthogonal codes (OC) each uniquely associated with multipliers 12 and 14 and their respective antennas 16 and 18 in Figure 4 satisfy the disputed claim limitations.

The record (FF 3) supports the Examiner's finding. Appellants do not explain how Ylitalo's encoder results in error or how the claim precludes such an encoder. Appellants also disclose an encoder 11 (Fig. 2).

Appellants' nominal arguments fail to adequately address the

Examiner's prima facie rejection of claim 1 to demonstrate, on appeal, Examiner error.

Rejection of Claims 2-4 based on Ylitalo, Dabak '260, and Akiba

Appellants (Br. 7-8) present arguments directed to claim 2. Accordingly, claim 2 is selected as representative. *See* 37 C.F.R. § 41.37(c)(1)(vii). Claim 2 recites limitations similar to those in claim 9. As such, the Examiner (Ans. 7-8) relied on Akiba to teach “a first and second scrambling device” and related limitations set forth in claim 2. Appellants' responses (Br. 7-8) to the claim 2 rejection parallel their responses to the claim 9 rejection discussed *supra*. Accordingly, for the reasons explained above, Appellants have failed to demonstrate error in the rejections of claim 2, and claims 3 and 4 which fall therewith, *In re Nielson*, 816 F.2d 1567, 1572 (Fed. Cir. 1987).

CONCLUSION

Appellants waived the rejections of claims 1-4, 9, and 10 under the judicially created doctrine of obviousness-type double patenting based on Appellants' Application Nos. 10/077,076 and 10/079,107. Accordingly, we sustain that rejection *pro forma*. Appellants showed that the Examiner erred in finding claims 1-4 indefinite. Appellants did not show that the Examiner erred in finding that Dabak '473 discloses spreading a data field using “a first channelization code that is uniquely associated with the first antenna” and “a second channelization code that is uniquely associated with the second antenna” as set forth in claim 9. Appellants did not show that the Examiner erred in finding that Ylitalo teaches spreading first data using “a first channelization code that is uniquely associated with the first antenna”

and spreading second data using “a second channelization code [that is] uniquely associated with the second antenna” as set forth in claim 1.

Therefore, we sustain the prior art rejections and obviousness-type double patenting rejection of claims 1-4, 9, and 10, but, we do not sustain the indefiniteness rejection of claims 1-4.

DECISION

We affirm the Examiner’s decision rejecting all claims on appeal, claims 1-4, 9, and 10.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136. *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

KMF

VOLPE AND KOENIG, P.C.
DEPT. ICC
United Plaza, Suite 1600
30 South 17th Street
Philadelphia, PA 19103